IT IS CLAIMED:

1. A method for detecting at least one nucleic acid target sequence in a nucleic acid sample, employing an effector system capable of cleaving a labile linkage, a primer and a probe for each target sequence, wherein for each target sequence, said primer comprises a first sequence that hybridizes to a first portion of said target sequence and a member of said effector system, and said probe comprises a second sequence that hybridizes to a second portion of said target sequence proximal to said first portion and a tag specific to the target sequence linked to said second sequence through said labile linkage, said method comprising:

combining under hybridizing conditions, said sample, said primer and said probe and any additional members of said effector system under conditions where said primer substantially stably binds to said first sequence and said probe reversibly binds to said second sequence, whereby when said primer and probe are both bound to said target sequence said labile linkage is cleaved by said effector system releasing said tag bound to said probe; and

analyzing for released tags as related to the presence of said target sequence.

2. A method according to Claim 1, wherein one of said member and said labile linkage is DNA and the other is RNA and said effector system comprises an enzyme which cleaves the labile linkage when said labile linkage is hybridized to said member.

3. A method according to Claim 1, wherein said member comprises a metalloorganic moiety and said labile linkage is oxidatively labile, where when said labile linkage is cleaved said metalloorganic moiety is reduced, and said effector system comprises an electron receptor for cycling said metalloorganic moiety.

4. A method according to Claim 1, wherein said member is an enzyme and said labile linkage is cleaved by said enzyme.